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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,017	12/16/2005	Junichi Arami	283278US26PCT	5969

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EXAMINER	
KACKAR, RAM N	

ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
05/29/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/561,017	ARAMI, JUNICHI	
	Examiner	Art Unit	
	Ram N. Kackar	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-13 and 15-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-13 and 15-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 4, 6-9, 15, 17 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al et al (JP 63278322) in view of Arami et al et al. (US 5,904,872) and further in view of Toya et al. (US 6,407,371).

Takagi et al disclose a compact heater (Figs 3) with a circular lid shaped mounting table cover (3) which absorbs light (even if small amount), heating elements (1a, 1b or 11) and thermal insulator (4) in contact with the cover.

Takagi et al do not disclose that the thermal insulator is a reflector (reflectors are thermal insulators by reflecting back thermal radiation) and thermal elements are in a quartz tube welded to the reflector plate.

Arami et al et al teach a processing chamber 41 accommodating therein the mounting table 1; a gas supply unit 45 for supplying a gas in the processing chamber; and a vacuum pumping system 50 for evacuating the processing chamber; a heating unit including a reflector plate 21 made of opaque quartz.

It would be obvious to replace thermal insulator by reflector since reflector plate functions as thermal insulator by reflecting heat energy so that it does not transmit through it.

Takagi et al in view of Arami et al do not teach a quartz tube welded to a surface of the reflector plate, wherein a carbon wire which generates heat when a current is applied thereto is inserted in the quartz tube.

Toya teaches a quartz tube welded or fused to a surface of the reflector plate, wherein a carbon wire which generates heat when a current is applied thereto is inserted in the quartz tube. (See, for example, Fig. 13, 14). Toya teaches numerous examples of fusion of quartz or glass (Col 3 lines 41-67, Fig 12, Col 14 lines 42-65).

For claims 7 and 14, Toya teaches that the quartz tube is bent. (See, for example, Fig. 13-15).

Regarding claim 8 and 15, Toya teaches that the quartz tube is divided and welded to a plurality of zones on the surface of the reflector plate. (See, for example, Fig. 15).

Regarding claim 17 the limitation of joint pins appears to be a spot weld joint. This type of joint is disclosed by Toya et al (Col 9 lines 47-49).

Therefore, it would have been obvious to a person of ordinary skill in the art to use a carbon wire and quartz tube heater as the heater in Arami et al since carbon wires eliminate the contamination associated with metallic heating elements. (See, for example, Toya, col. 1, lines 4-55).

2. Claims 4, 6-13, 15, 17, 19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al et al (JP 63278322) in view of Arami et al et al. (US 5,904,872) and further in view of Saito et al (US 6,369,361).

Takagi in view of Arami as discussed above do not teach a quartz tube welded to a surface of the reflector plate, wherein a carbon wire which generates heat when a current is applied thereto is inserted in the quartz tube.

Saito et al teach a mounting table 11 on which a target object is mounted; a processing chamber accommodating therein the mounting table; a gas supply unit 24 for supplying a gas in the processing chamber; a vacuum pumping system 25 for evacuating the inside of the processing chamber; a target object heating unit 60 for heating the target object; an inner vessel 1 installed in the processing chamber;

a heating unit 40, installed between the inner vessel and an inner wall of the processing chamber, for heating the inner vessel, wherein the inner vessel is made of a light absorbing material, and the heating unit includes a reflector plate 3, and a quartz tube 4 welded to a surface of the reflector plate, a carbon wire which generates heat when a current is applied thereto being inserted in the quartz tube.

Saito et al teach a quartz tube welded to a surface of the reflector plate (Col 6 lines 31-42 and Figs 3A and 3B).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a carbon wire and quartz tube heater as the heater in Arami et al and to weld or fuse it to a reflector plate to eliminate the contamination associated with metallic heating elements. (See, for example, Toya, col. 1, lines 4-55).

For claims 7, 12-14 Saito teaches the quartz tube is bent, divided, and welded to a plurality of zones on the surface of the reflective plate. (See, for example, Fig. 3A and 8).

Regarding claim 19 it is obvious to have reflecting surface all around including the ceiling.

Regarding claim 21 the limitation of joint pins appears to be a spot weld joint. This type of joint is only a welding joint as disclosed above and therefore obvious.

3. Claims 4-10, 15, 17 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al et al (JP 63278322) in view of Li et al (US 6448536) and Arami et al et al (US 5,904,872) and further in view of Toya et al. (US 6,407,371).

Takagi et al as discussed above, do not disclose that the thermal insulator is a reflector and thermal elements are in a quartz tube welded to the reflector plate.

Li et al et al teach a processing chamber (Fig 1) accommodating therein the mounting table 3 of SiC; a gas supply unit 22a for supplying a gas in the processing chamber; and a vacuum pumping system 27 for evacuating the processing chamber; a heating unit including a reflector plate 19.

It would be obvious to replace thermal insulator by reflector since reflector plate functions as thermal insulator by reflecting heat energy so that it does not transmit through it.

Takagi et al in view of Li et al do not teach a quartz tube welded to a surface of the reflector plate of opaque quartz, wherein a carbon wire which generates heat when a current is applied thereto is inserted in the quartz tube.

As discussed above Arami et al disclose reflector of opaque quartz and Toya et al disclose quartz tube welded to reflector plate.

Therefore it would have been obvious to a person of ordinary skill in the art to use a carbon wire and quartz tube heater as the heater since carbon wires eliminate the contamination associated with metallic heating elements. (See, for example, Toya, col. 1, lines 4-55).

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over to Takagi et al et al (JP 63278322) in view of Arami et al et al. (US 5,904,872) and Toya et al. (US 6,407,371) as applied to claim 4 and further in view of Ichiro Takahashi (US 6254687).

Claim 16 pertains to assembly of the heater parts with a cover at the top, which cover is positioned in proper alignment to the reflector plate. This is only a proper assembly and well within the capability of one of ordinary skill in the art at the time of invention.

However such examples exist in the prior art. For example Ichiro Takahashi discloses a positioning projection (Fig 1) provided in an upper direction at a peripheral region of the reflector plate and positions the mounting table cover member (16) which is inserted by the positioning projection.

Therefore having a cover positioned in a well known type of assembly for heater would have been obvious for one of ordinary skill in the art at the time of invention.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over to Takagi et al et al (JP 63278322) in view of Arami et al et al. (US 5,904,872) and Toya et al. (US 6,407,371) as applied to claim 4 and further in view of Tay et al (US 2003/0094446).

Arami et al et al in view of Toya et al do not disclose lower half portion of the quartz tube being opaque quartz, and an upper half portion of the quartz tube is transparent quartz.

Tay et al disclose half part of the heating tube lined with reflecting coating (Fig 4 106 or Fig 5 108).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have half portion of heating tubes welded to reflector plate made of opaque quartz as the reflector plate in Arami et al, in order to have heat concentrated on the substrate.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al et al (JP 63278322) in view of Arami et al et al (US 5,904,872) and Saito et al (US 6,369,361) as applied to claim 19 and further in view of Tay et al (US 2003/0094446).

Arami et al and Saito et al do not disclose lower half portion of the quartz tube being opaque quartz, and an upper half portion of the quartz tube is transparent quartz.

Tay et al disclose half part of the heating tube lined with reflecting coating (Fig 4 106 or Fig 5 108).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have half portion of heating tubes welded to reflector plate made of opaque quartz as the reflector plate in Arami et al, in order to have heat concentrated on the substrate.

Response to Arguments

Applicant's arguments filed 2/27/2009 have been fully considered but they are not persuasive and moot in view of the present grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ram N Kackar/
Primary Examiner, Art Unit 1792